REMARKS/ARGUMENTS

The present amendment is in response to the Office Action mailed , 2003, in which Claims 1 through 6, 9, 11 through 15, 20, 21, 22, 27, 28 and 29 were rejected. Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the reference cited therein. The following remarks are believed to be fully responsive to the Office Action and, when coupled with the amendments made herein, are believed to render all claims at issue patentably distinguishable over the cited references.

Claims 1 and 28 are amended herein. No claims are cancelled. New Claim 30 is added for consideration at this time. Accordingly, Claims 1 through 6, 9, 11 through 15, 20, 21, 22 and 27 through 30 remain pending.

All the changes are made for clarification and are based on the application and drawings as originally filed. It is respectfully submitted that no new matter is added.

Applicants respectfully request reconsideration in light of the above amendments and the following remarks.

CLAIM REJECTIONS – 35 U.S.C. SECTION 112, 1st PARAGRAPH

Initially the Examiner rejected Claim 1 under 35 U.S.C. Section 112, 1st Paragraph, as containing subject matter which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicants explain the situation as follows. Defatted soybean flour (the substrate in the present process) contains aspartic acid, glutamic acid, lysine, arginine and histidine as the charged groups in the selected pH range. This is chosen such that the suitable charge is present on the protein surface for cleavage by the selected proteolytic enzyme. Accordingly, the pH range is described as being between about 6 to about 7.

Accordingly, Applicants respectfully submit that this rejection is now overcome. Reconsideration and withdrawal of the rejection under 35 U.S.C. Section 112 are respectfully requested.

CLAIM REJECTIONS – 35 U.S.C. SECTION 112, 2nd PARAGRAPH

The Examiner next rejected Claims 28 and 29 under 35 U.S.C. Section 112, 2nd Paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Applicants have cancelled Claims 28 and 29, thus rendering this rejection moot.

CLAIM REJECTIONS – 35 U.S.C. SECTION 102(b)

The Examiner rejected Claims 1 through 6, 9, 11 through 15, 20, 21, 22, 27, 28 and 29 under 35 U.S.C. Section 102(b) as being anticipated by Delrue *et al.*

Applicants respectfully traverse this rejection.

In response to the Examiner's request for clarification as to how the heating of Delrue *et al.* will remove the soybean whey component from the soy flour slurry, Applicants respectfully observe that the heating of the soy flour of Delrue *et al.* would necessarily result in the aggregation of protein due to the exposure of hydrophobic patches of the protein. The exposed hydrophobic patches would mutually attract each other, thus resulting in the aggregation and precipitation of the protein.

Conversely, according to the method of the present invention, heating is undertaken at the end of the enzymatic hydrolysis solely for the purpose of inactivating the enzyme (the plant protease) and not for any other modification of the substrate or of the product (the soy protein or the protein hydrolysate).

Applicants which to observe that the entire process set forth and claimed is set up in such a way that 11% nitrogen is obtained in the product. The final product obtained by the above process would have 11% nitrogen, 20 – 23 trypsin inhibitor units/mg protein, 95 – 98% nitrogen solubility index, 2 – 2.2% bitterness recognition threshold and 35 – 45% degree of hydrolysis. The cream colored product further has no detectable lipoxygenase or urease activities and

has similar amino acid make-up as the starting material.

The cleavage of protein by papain would depend on the conformation of the protein which determines the extent of exposure of the peptide bond. The exposure of the peptide bond for cleavage by any proteolytic enzyme is dependent upon:

(a) Conformation of the protein

(b) Charge distribution on the surface of the protein

The process of the present invention uniquely is dependent upon the selection of the right kind of pH, temperature, enzyme-to-substrate ratio, and conformation of the substrate to deliver the final desired product. The process parameters that have been used ensure the desired conformation of the protein and the desired charge distribution on the surface of the protein. Applicants respectfully submit that no other combination of steps or processes would produce the product described in the process.

Applicants have amended independent Claim 1 for clarification so as to define the method as *consisting of* the specified steps as opposed to the prior language of *comprising*. Applicants have also defined the "known manner" of inactivating the enzymes as being heating according to specified parameters and have defined the "known manner" of separating the solids as being undertaken by centrifugation. Applicants respectfully submit that this method as amended herein for clarification is not anticipated by the teachings of Delrue *et*

al.

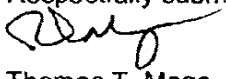
Accordingly, Applicants respectfully submit that this rejection is now overcome. Reconsideration and withdrawal of the rejection under 35 U.S.C. Section 102 are respectfully requested.

CONCLUSION

In light of the above amendments and remarks, Applicants respectfully submit that all pending claims as currently presented are in condition for allowance. If, for any reason, the Examiner disagrees, please call the undersigned attorney at 248-433-7552 in an effort to resolve any matter still outstanding *before* issuing another action. The undersigned attorney is confident that any issue which might remain can readily be worked out by telephone.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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TTM/hs